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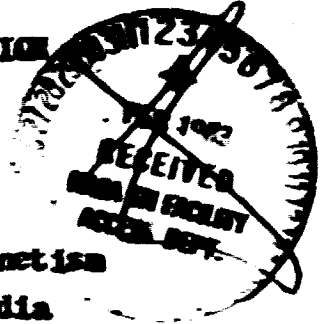
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PROGRESS REPORT

MAGSAT FOR GEOMAGNETIC STUDIES OVER INDIAN REGION

Investigation Number M-38



Author's name

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Organisation

: Indian Institute of Geomagnetism
Colaba, Bombay 400 005, India

Type of Report

: Fourth Progress Report

Reporting Date

: December 1, 1982

Investigation Period

: August 1, 1982 to November 30, 1982

The investigation team consists of the following members:

R G Bastogi, B P Singh, D R K Rao

G K Rangarajan, R Rajaram, M Roy

and B R Arora

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The following collaborators participated in data analysis during the investigation period:

Kalpna Rajavanshi, S Srinivasan and L Carlo

I. Summary

The major activities of the period were: (i) removal of the external current field due to ring current and the associated induced part, (ii) selecting adjacent passes over India and estimation of best function to account for the trend corrections; (iii) making operational UPCON software sent by Dr R L Coles of Canada; and (iv) the studies of features of equatorial electrojet from MAGSAT records.

II. Techniques

The contribution from the external field due to ring current and other magnetospheric currents together with their associated internal part was removed by the techniques discussed in the Third

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Progress Report. These contributions have been removed from all passes during quiet periods over the Indian region. A separate tape containing the data after removal of ring current corrections has been prepared. From this set, adjoining passes over Indian regions are being examined to ascertain the best functional representation to the residual trend.

A version of MAGSAT software tape was kindly sent by Dr R L Coles, Department of Energy, Mines and Resources, Government of Canada, and it has been possible to read the tape on the CYBER system available to this Institute for computation. The UPCON programme from the tape has been made functional and a test run using the POGO data in the form of anomaly seen over the Indian region is being tried. (The POGO data file was sent to this Institute by NASA on the request made to Dr R D Regan).

The study for the features of equatorial electrojet detailed in the Third Progress Report was continued and the project completed.

III. Accomplishments

- 1) Data for the quiet periods over the Indian region have been corrected for ring current and associated contributions.
- 2) The UPCON programme has been made operational.
- 3) Long wavelength magnetic anomalies over the Indian region have been identified.
- 4) A vertical component in the equatorial electrojet current system has been established.

IV. Significant results

Those reported in the Third Progress Report have been further confirmed.

V. Publications

1) A paper entitled "On long wavelength magnetic anomalies over India" was presented in the Eighth Annual Convention and Seminar on Exploration Geophysics organised by the Association of Exploration Geophysicists of India. This contribution was authored by S Srinivasan, L Carlo, R G Rastogi and B P Singh. The seminar was held on November 4-6, 1982 at Banaras Hindu University, U.P., India.

2) A paper entitled "Equatorial ionospheric current driven from MACSAT data" by Manashi Roy has been communicated for publication.

VI. Problems : Nothing significant.

VII. Data quality and delivery

As stated in earlier reports the data delivery has been extremely regular and our request for other materials have been promptly attended by NASA.

VIII. Recommendations : Nothing for the present

IX. Conclusion : The data seem to contain important signatures of both the sub-surface geological features of the Indian region and the external current system over the low latitude regions.